



INEL-95/0424
Revision 3

February 1997

Health and Safety Plan for Mercury Retort Project

R.W. Jones



Health and Safety Plan for Mercury Retort Project

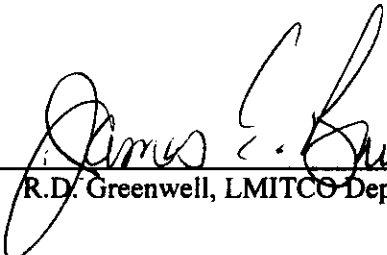
R. W. Jones

Published February 1997


**Prepared for Lockheed Martin Idaho Technologies Company
by Parsons Infrastructure and Technology Group, Inc.
Under Subcontract No. C95-175008
and for the
U.S. Department of Energy
Assistant Secretary for Environmental Management
Under DOE Idaho Operations Office
Contract DE-AC07-94ID13223**

Health and Safety Plan for Mercury Retort Project

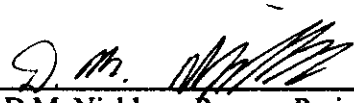
Approved by:

 For Doug Greenwell 2/25/97

R.D. Greenwell, LMITCO Department Manager Date

 21 Feb 9/87 (D

C. G. Dietz, LMITCO Project Manager Date

 2/21/97

D.M. Nicklaus, Parsons Project Manager Date

ABSTRACT

This Health and Safety Plan (HASP) establishes the procedures and requirements that will be used to minimize health and safety risks to persons working at the Mercury Retort Project site, as required by the Occupational Safety and Health Administration standard, 29 Code of Federal Regulations (CFR) 1910.120. It contains information about the hazards involved in performing the work, and the specific actions and equipment that will be used to protect persons working at the site. This HASP has been prepared to comply with the authorized safety basis as detailed in the *Auditable Safety Analysis for the Treatment of Mercury-Contaminated Waste from Environmental Restoration Operations* and interoffice correspondence from R.W. Jones to D.M. Nicklaus dated 1/14/97 (DCCN: 09:04:003-97).

CONTENTS

1.	INTRODUCTION	1
1.1	INEEL Site Description.....	1
1.2	Work Site Description	3
1.3	Scope of Work.....	3
2.	WORK SITE RESPONSIBILITIES	7
2.1	Work Site Personnel.....	7
2.1.1	ER Director.....	7
2.1.2	LMITCO Project Manager	7
2.1.3	Parsons Project Manager.....	7
2.1.4	Parsons Construction Manager.....	9
2.1.5	Parsons Construction Engineer	9
2.1.6	Work Site Personnel.....	9
2.1.7	Nonworkers	9
2.1.8	Health and Safety Officer.....	10
2.1.9	Industrial Hygienist	10
2.1.10	Safety Engineer	10
2.1.11	Radiological Control Technician	10
2.1.12	Radiological Engineer	11
2.1.13	Occupational Medical Program.....	11
2.1.14	Facility Tenant Manager	11
2.1.15	Facility Landlord or Representative.....	11
2.1.16	Environmental Compliance Engineer	11
2.1.17	Quality Engineer.....	12
2.2	Recordkeeping Requirements.....	12
2.2.1	Industrial Hygiene and Radiological Monitoring Records	12
2.2.2	CE Daily Force Report and Site Attendance Logbook	12
2.2.3	Administrative Record and Document Control Office	12
2.2.4	Document Control Office.....	12
3.	PERSONNEL TRAINING	14
4.	OCCUPATIONAL MEDICAL PROGRAM AND SURVEILLANCE	16
4.1	Subcontractor Workers.....	17
4.2	Injuries on the Work Site	16
4.3	Substance-Specific Medical Surveillance	18

5.	SAFE WORK PRACTICES	19
5.1	General Safe Work Practices.....	19
5.2	ALARA Principles	20
5.3	The Buddy System	21
6.	SITE CONTROL AND SECURITY	22
6.1	Exclusion Zone.....	22
6.2	Contamination Reduction Zone.....	22
6.3	Support Zone	22
6.4	Designated Eating Area.....	24
7.	HAZARD EVALUATION	25
7.1	Hazard Assessment.....	25
7.2	Environmental and Personnel Monitoring	25
7.2.1	Industrial Hygiene Monitoring.....	25
7.2.2	Radiological Monitoring	28
7.2.3	Action Levels	28
7.3	Physical Hazards Evaluation, Control, and Monitoring.....	28
7.3.1	Temperature Extremes	28
7.3.2	Noise.....	30
7.3.3	Fire and Explosion Hazards	30
7.3.4	Confined Spaces	30
7.3.5	Industrial Safety Hazards	31
7.4	Other Work Site Hazards	34
8.	PERSONAL PROTECTIVE EQUIPMENT.....	34
8.1	Level D Personal Protective Equipment	35
8.2	Level C Personal Protective Equipment.....	35
8.3	Modified Level D Personal Protective Equipment	36
9.	DECONTAMINATION PROCEDURES	37
9.1	Level D PPE Decontamination.....	37

9.2	Level C PPE and Modified Level D Decontamination	37
9.3	Decontamination of Personnel and Equipment.....	37
9.3.1	Decontamination in Medical Emergencies	38
9.3.2	Equipment Decontamination and Disposal of Contaminated Materials.....	38
9.3.3	Site Sanitation and Waste Minimization.....	38
10.	EMERGENCY RESPONSE PLAN FOR WORK SITE	39
10.1	Emergency Equipment on the Site	40
10.2	Telephone/Radio Contact Reference List for the Mercury Retort Site.....	43
11.	REFERENCES.....	44
12.	HEALTH AND SAFETY PLAN TRAINING ACKNOWLEDGMENT	46
13.	HAZWOPER 24 HOUR SUPERVISED FIELD EXPERIENCE ACKNOWLEDGMENT FORM	48

FIGURES

1.	Map of the INEEL showing locations of major facilities.....	2
2.	CFA Map with OU 4-05 TAA and Medical Facility Locations.....	5
3.	Field Organization Chart.	8
4.	OU 4-05 TAA Layout Area.	23
5.	CFA Map with OU 4-05 TAA and Medical Facility Locations.....	42

TABLES

1.	Required training for work site personnel.	15
2.	Work site activities and associated hazards.....	26
3.	Hazardous materials present at the Mercury Retort site.....	27
4.	Contaminants to be monitored.....	29
5.	Equipment to be used for monitoring.	29

6.	Radiological monitoring equipment.	29
7.	Action levels for the work site.	30
8.	Level of PPE and modifications for specific tasks.	36
9.	Responsibilities during an emergency.	39
10.	Emergency response equipment to be maintained at the work site.	41

ACRONYMS

ACGIH	American Conference of Government Industrial Hygienists
ALARA	as low as reasonably achievable
ARDC	Administrative Record and Document Control
CE	construction engineer
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFA	Central Facilities Area
CFR	Code of Federal Regulations
CM	construction manager
DC	Document Control
D&D	decontamination and dismantlement
DOE	Department of Energy
DOE-ID	DOE Idaho Operations Office
DOT	Department of Transportation
EAM	emergency action manager
EO	Environmental Operations
EPA	Environmental Protection Agency
ER	Environmental Restoration
ERP	Environmental Restoration Program
ES	Environmental Safety
ES&H	Environmental Safety & Health
FID	flame ionization detector
GFCI	ground fault circuit interrupter

HAZWOPER	hazardous waste operations
HSO	health and safety officer
HASP	Health and Safety Plan
HAZMAT	hazardous materials
ICPP	Idaho Chemical Processing Plant
IDLH	immediately dangerous to life and health
IH	industrial hygienist
INEEL	Idaho National Engineering and Environmental Laboratory
IX	ion exchange
JES	Job Entry Supervisor
JSA	Job Safety Analysis
JSS	job site supervisor
LMITCO	Lockheed Martin Idaho Technologies Company
MCP	Management Control Procedure
MSDS	material safety data sheet
NIOSH	National Institute of Safety and Health
NRTS	National Reactor Testing Station
OMP	Occupational Medical Program
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
Parsons	Parsons Infrastructure & Technology Group, Inc.
PBF	Power Burst Facility

PD	Program Directive
PEW	Process Evaporation Waste
PID	photoionization detector
PM	project manager
PPE	personnel protective equipment
PRD	program requirements directive
QPP	Quality Project Plan
RA	Removal Action
RADCON	Radiation Control
RCT	radiological control technician
RD/RA	remedial design/remedial action
RWP	Radiological Work Permit
SWP	safe work permit
TAA	temporary accumulation area
TAN	Test Area North
TIS	Training Inquiry System
TLV	threshold limit value
USCG	United States Coast Guard
WBGT	Wet bulb globetest
WCC	Warning Communications Center

Health and Safety Plan for Mercury Retort Project

1. INTRODUCTION

This Health and Safety Plan (HASP) establishes the procedures and requirements that will be used to minimize health and safety risks to persons working at the work site. This HASP has been prepared to meet the requirements of the Occupational Safety and Health Administration (OSHA) standard, 29 Code of Federal Regulations (CFR) 1910.120, "Hazardous Waste Operations and Emergency Response." It has been prepared in recognition of and is consistent with the National Institute of Occupational Safety and Health (NIOSH)/OSHA/United States Coast Guard (USCG)/Environmental Protection Agency (EPA) *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities* (NIOSH 1985); the Lockheed Martin Idaho Technologies Company (LMITCO) *Safety and Health Manual* and the LMITCO *Radiation Protection Manual*. This HASP has been prepared to comply with the authorized safety basis as detailed in *Auditable Safety Analysis for the Treatment of Mercury-Contaminated Waste from Environmental Restoration Operations* and interoffice correspondence from R. W. Jones to D. M. Nicklaus dated 1/14/97 (DCCN: 09:04:003-97).

This HASP shall govern all work at the work site that is performed by employees of LMITCO and Parsons Infrastructure & Technology Group, Inc. (Parsons), subcontractors to LMITCO and Parsons, and employees of other companies or Department of Energy (DOE) laboratories. Persons not normally assigned to work at the work site, such as representatives of DOE, the State of Idaho, OSHA, and the EPA shall be considered nonworkers and fall under the definition of occasional site workers as stated in OSHA 29 CFR 1910.120.

This HASP will be reviewed and revised by the health and safety officer (HSO) in conjunction with the Parsons construction engineer (CE) and other health and safety professionals, including the LMITCO environmental (ER) Environmental Safety & Health (ES&H) manager, as necessary to ensure the effectiveness and suitability of this HASP.

1.1 INEEL Site Description

The Idaho National Engineering and Environmental Laboratory (INEEL), formerly the National Reactor Testing Station (NRTS), encompasses 890 mi², and is located approximately 52 km or (32 mi) west of Idaho Falls, Idaho (Figure 1). The United States Atomic Energy Commission, now DOE, established the NRTS in 1949 as a site for building and testing a variety of nuclear facilities. The INEEL has also been the storage facility of transuranic radionuclides and low-level radioactive waste since 1952. At present, the INEEL supports engineering and operations efforts of DOE and other Federal agencies in areas of nuclear safety research, reactor development, reactor operations and training, nuclear defense materials production, waste management technology development, and energy technology and conservation programs. The DOE Idaho Operations Office (DOE-ID) has responsibility for the INEEL, and designates authority to operate the INEEL to Government contractors. The primary contractor for DOE-ID at the INEEL is LMITCO. LMITCO provides managing and operating services to the majority of INEEL facilities. The remedial design/remedial action contractor for LMITCO at the INEEL is Parsons, which provides managing services for removal actions, decontamination and dismantlement (D&D) treatment actions, and remedial design/remedial action (RD/RA) activities.

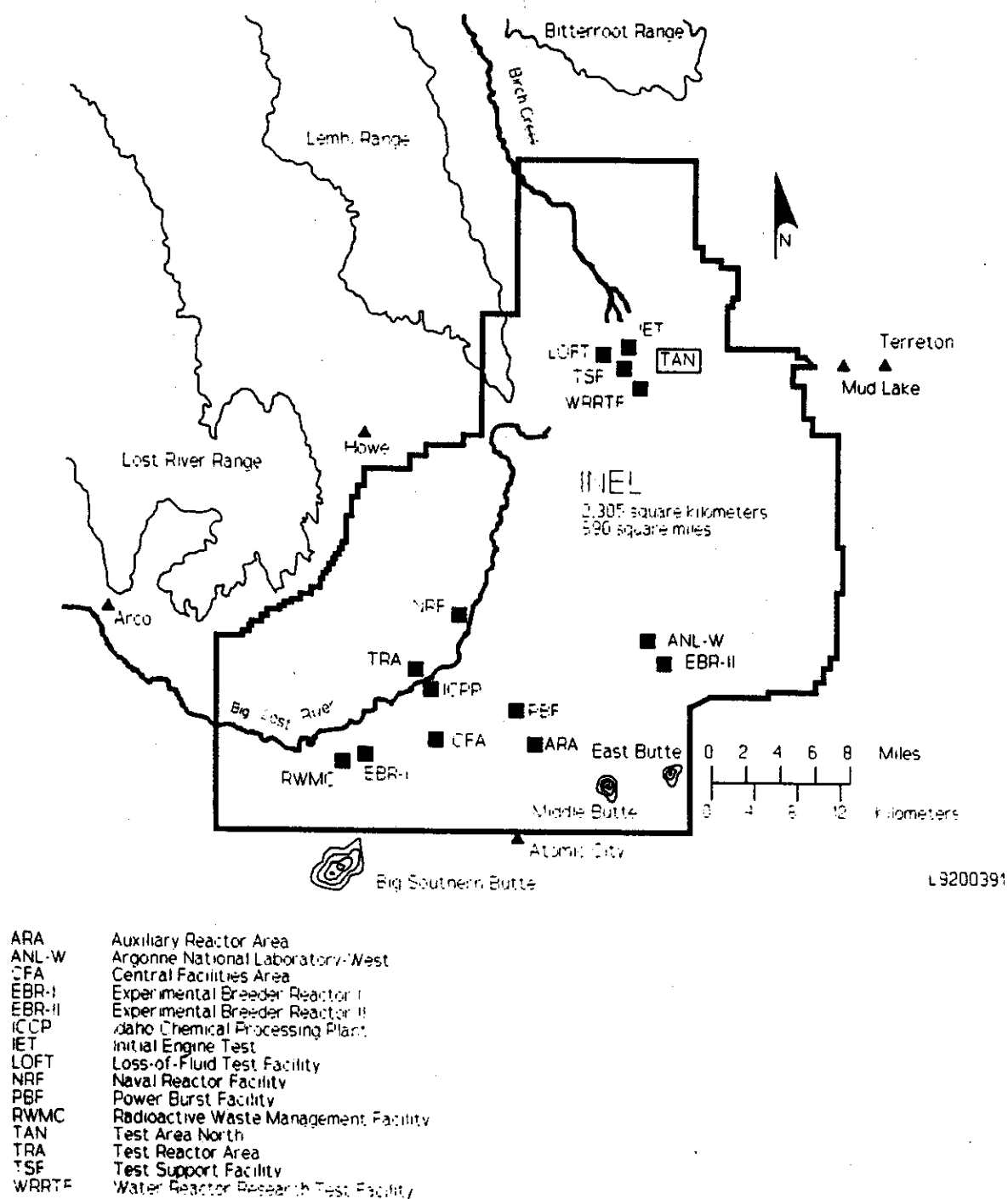


Figure 1. Map of the INEEL showing locations of major facilities.

1.2 Work Site Description

Filtration and ion exchange (IX) treatment of the mercury contaminated waste water will be conducted on INEEL property at the Central Facilities Area (CFA) (Figure 1). Another option is to transport the waste water to the Idaho Chemical Processing Plant (ICPP) and dispose of the water into the ICPP process Evaporation Waste (PEW) system. Other transportation or treatment options may also be pursued and additional information will be added to this HASP as appropriate. This treatment activity is the final part of two Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Time Critical Removal Actions (RAs) at the INEEL site. In 1994, RAs were conducted at a calcine waste disposal site at the CFA and at a mercury spill site located at the Test Area North (TAN). Wastes from these sites have been treated by the retort process, in accordance with 40 CFR 268.42 to reduce the mercury levels to below the hazardous waste standard for mercury as specified in 40 CFR 261.4. These further treatment activities will separate the mercury from the waste, to produce a non-hazardous waste for disposal.

The treatment site is located at the southeast end of Kearney Avenue and is approximately 68m (224 ft) south of CFA-674 (Figure 2). The treatment site is approximately 87 m by 19.5 m (285 ft by 64 ft). It has a small ditch running along the east edge of the site and the excess yard is located on the north side.

Mercury is the most common hazardous material associated with the site. Several waste streams are, or will be at the site:

- Approximately 20,000 gal of mercury contaminated water elemental mercury, recovered from the retort process
- Sludge from decontamination operations
- Soils that did not meet treatment standards
- Waste such as personal protective equipment, sampling waste, etc.
- Miscellaneous materials.

The 20,000 gal of mercury contaminated water is contained in a frac tank and may contain some elemental mercury, but, the mercury is mostly in the ionic form (concentrations are approximately 60 mg/L). Analyses indicate radioactivity levels are below the minimum detection level for gamma emitters; however, the water does contain Strontium-90 (at very low levels).

The other waste streams are contained in either 55 gal drums or wooden waste boxes. An additional waste stream includes approximately 140 wooden boxes of non-hazardous, non-radioactive soil that was treated by the retort process. The material is located outside of the exclusion zone and is expected to be transported off the work site for disposal (probably the CFA Landfill).

1.3 Scope of Work

Several different activities will occur at the Mercury Retorting site. The following paragraph will describe the various stages of work through completion and demobilization.

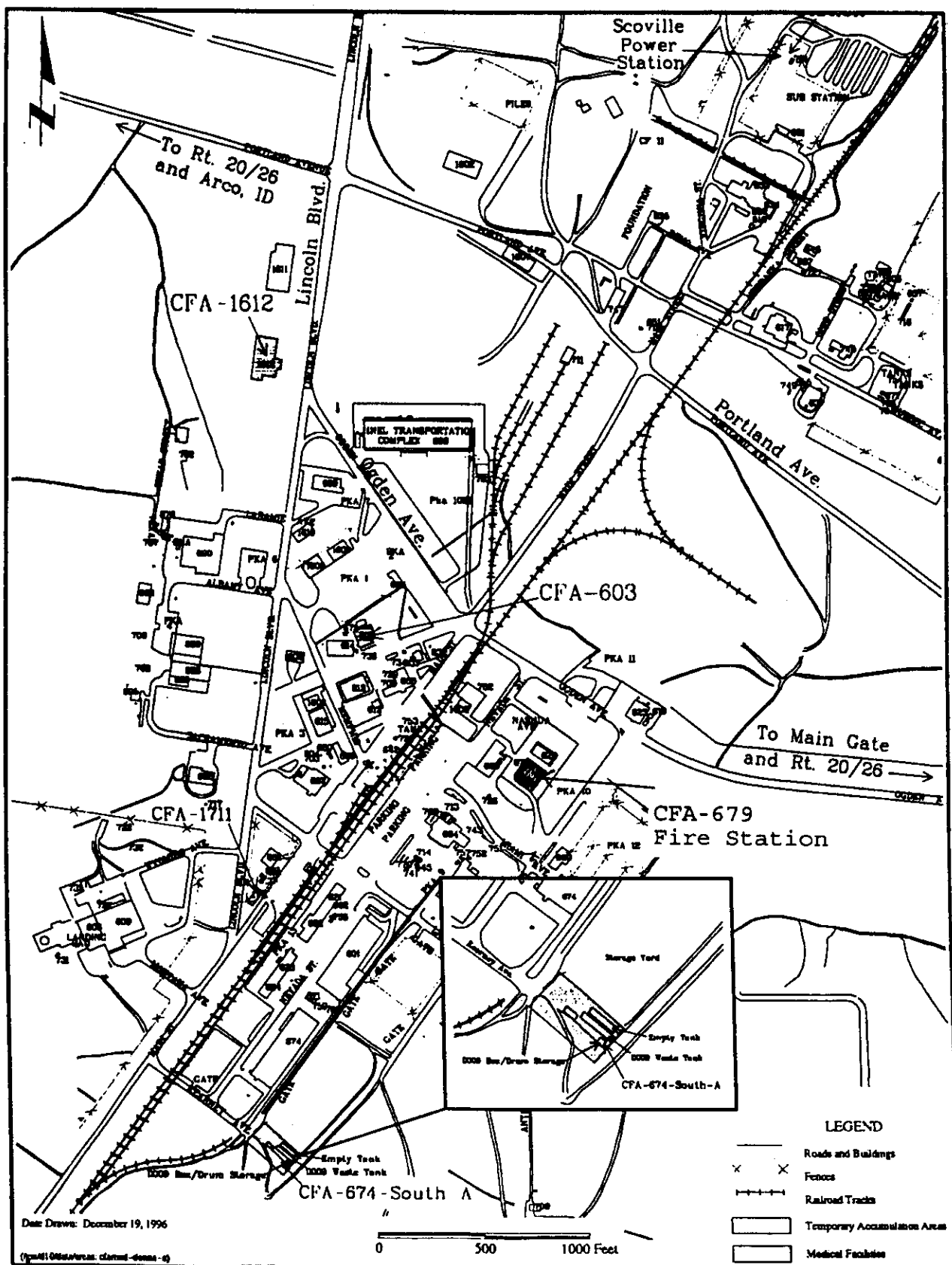


Figure 2. CFA Map with OU 4-05 TAA and Medical Facility Locations.

Treatability Studies. The actual treatability study activities are not included in this HASP; however, some activities (pretreatability and posttreatability studies) will be included. Before the study begins a 40-80 L sample of contaminated water from the frac tank must be obtained. The sample will be pumped out of the tank from the port on top, and then containerized and transported to the location of the treatability studies. The sample will be taken across the various depths of the tank.

Additional considerations are: receiving the return water and ion exchange material after the treatability studies are completed. There is also a potential that contaminated glassware, personal protective equipment (PPE), etc. may be returned.

Freeze Protection. The frac tank is presently equipped with freeze protection measures. Insulating blankets are being used on the outside of the tank to help protect the tank contents from freezing. Two immersion type heaters are in use in the back of the tank and two have been mounted and in use in one of the hatch covers on the front of the tank. A sump pump is also in the tank to keep the contents moving.

TAA Operations. Presently, the exclusion zone at the work site is a TAA. The exclusion zone contains the frac tank, three 2- x 4- x 8- ft boxes of contaminated sludge, four 2- x 4- x 8- ft boxes of contaminated soil (treated by retorting process), and nine 55 gal drums of various waste forms (PPE, sludge, diesel contaminated debris, asbestos PPE, and spill material). Activities that are covered by this HASP and are part of the TAA operations include:

- Transporting existing drums and boxes within the TAA or to disposal site(s)
- Receipt and removal of waste containers (including shipping for treatment and/or disposal)
- Storage of waste (present inventory is mentioned above)
- Repackaging waste (all sludge in drums, recovered mercury into Department of Transportation (DOT) approved container, etc.)
- Removal of precipitation from the secondary containment areas
- Sampling waste in the TAA (soil, water, mercury, etc.)
- Transporting waste waters
- Other treatment options.

Treated Material. Over 100 boxes (both 2 x 4 x 8 and 4 x 4 x 8 ft) of treated material (soil) are presently stored at the work site. The boxes are located outside of the exclusion zone and are segregated as far as where the material came from (CFA and TAN). Activities involving the treated material include:

- Moving boxes within the work site and/or transporting them offsite (i.e., CFA Landfill or other INEEL long term storage site)
- Dumping the material from the boxes and removal and disposal of the box liners.

Diesel Contaminated Material. One 55 gal drum of diesel contaminated material is present in the TAA. The drum contains a mixture of soil, grass, cardboard, and plastic containers. This waste stream is a result of using a diesel generator and diesel storage tank during the retorting activities in 1994 and 1995. A metal stock tank was used as secondary containment for the diesel storage tank. Rain water and diesel spills from refueling operations were caught in the tank and during decontamination activities the soil was contaminated with the diesel/water mixture. The diesel/water mixture and the contaminated soil was placed in 55 gal drums. Three aqueous drums and one drum of contaminated soil was mixed with soils from Operable Unit (OU) 4-09 and landfarmed. The remaining drum is still awaiting final disposition.

Mercury Contaminated Water in Frac Tank. Presently approximately 20,000 gal of mercury contaminated water is stored in a frac tank located in the TAA. The tank contains water from the retorting process and decontamination of tanks and drums. The mercury in the frac tank is mainly in the ionic form with concentrations at approximately 60 mg/L. The proposed treatment for this volume of waste is ion exchange (IX). The water will be processed through an IX system, containerized, and then sampled prior to release to the ground surface (the water will be released if the release limits are met).

The process system will consist of filtration, IX, pump(s), and product holding tank(s). Two sets of two bag filters to remove larger particles (bag filter sizes have not been determined but are likely to be 50 to 1000 microns). The IX material is a Purolite S-920 resin. Pump(s) will probably be operated at a volume of 8 to 10 gallons per minute (gpm), the optimum volume will be determined in the treatability study. A holding tank(s) will be used to store processed water until the volume is sampled and analyzed. The release criteria will be per pre-negotiated concentrations based upon risk to the groundwater drinking water supply system. The frac tank is presently in the TAA and exclusion zone and the tank has secondary containment. The IX system and the storage tank(s) will also be placed in secondary containment prior to processing any waste.

Decontamination. The tanks, drums, and all equipment will be decontaminated prior to release from the work site. Decontamination may include, but is not limited to: rinsing, washing, and/or wiping of the tanks, drums, and some of the equipment such as the heaters, pumps, and piping. The process equipment (filters, IX column, and associated piping) will also be decontaminated. The stock tank, which was mentioned earlier and was used for various activities (i.e., decontamination of tanks and drums) that involved mercury contamination, will also be decontaminated. Any containers or equipment that cannot be decontaminated will be stored in the TAA pending final disposition. Prior to any decontamination of equipment, etc., an agreement with the State of Idaho concerning decontamination procedures must be reached.

Demobilization. Demobilization activities will include removal of the tanks, drums, equipment, boxes of the nonhazardous treated material and sludge material, and office trailer from the work site. Some equipment (such as the process equipment) may need dismantling prior to moving from the site. The secondary containments will also have to be decontaminated and disposed. Surface soil sampling in the area may also be required prior to releasing the site for unrestricted use.

2. WORK SITE RESPONSIBILITIES

2.1 Work Site Personnel

The organizational structure for this work reflects the resources and expertise required to perform the work, while minimizing risks to worker health and safety. Names of the individuals who will be filling the key roles at the work site, and lines of responsibility and communication are shown on the organizational chart for the work (Figure 3).

The following subsections outline responsibilities of key site personnel.

2.1.1 ER Director

The LMITCO ER director has ultimate responsibility for the technical quality of all projects and safety of personnel during field activities performed by or for the Environmental Restoration Program (ERP). The ER director provides technical coordination and interfaces with the DOE-ID Environmental Support Office. The ER director ensures that:

- All activities are conducted in accordance with DOE, EPA, OSHA, and State of Idaho requirements and agreements
- Program budgets and schedules are monitored and approved
- Availability of necessary personnel, equipment, subcontractors, and services is provided
- Direction for the development of tasks, evaluation of findings, development of conclusions and recommendations, and production of reports is provided.

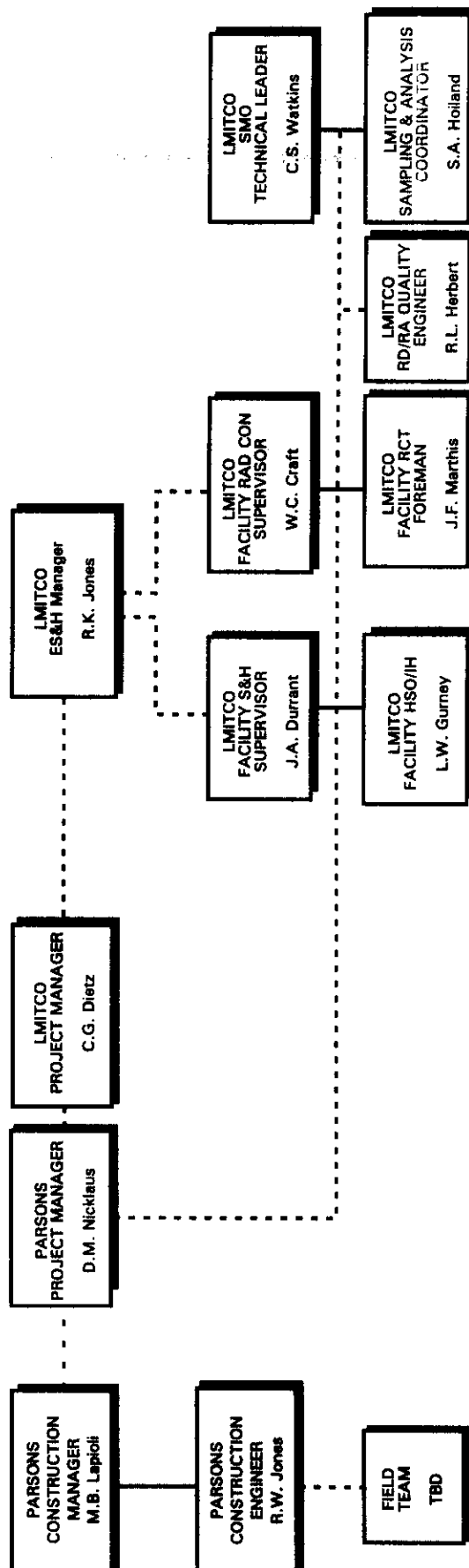
2.1.2 LMITCO Project Manager

The LMITCO project manager (PM) has RD/RA task order responsibilities for project work scope, schedule and costs. The LMITCO PM is the CFA-674-South-A Temporary Accumulation Area Facility Manager. The LMITCO PM has responsibility for ensuring that documentation covering activities at the project site are in compliance with LMITCO ER Management Control Procedures (MCPs), Program Requirements Directives (PRDs) and all applicable OSHA, EPA, DOE, Department of Transportation (DOT) and State of Idaho requirements.

2.1.3 Parsons Project Manager

The Parsons project manager has the responsibility for ensuring that all activities conducted during the project are in compliance with the *Parsons RD/RA project procedures*, applicable LMITCO MCPs and PRDs and all applicable OSHA, EPA, DOE, DOT, and State of Idaho requirements. The project manager is responsible for ensuring that tasks comply with the *Quality Program Plan for the Environmental Restoration Program* (QPP-149), the quality assurance project plan, this HASP, and the sampling and analysis plan. The project manager coordinates all field,

Field Functional Chart



— Direct Line Responsibility
 - - - Matrix Line Responsibility; Lines of Communication
 TBD To Be Determined

Figure 3. Field Organization Chart.

laboratory, and modeling activities. The Parsons project manager reports to the Parsons RD/RA manager and coordinates all project activities with the LMITCO ER project manager.

2.1.4 Parsons Construction Manager

The Parsons construction manager (CM) is responsible for field implementation of the project. This involves ensuring that all project tasks receive appropriate health and safety review before commencement, and that the necessary equipment and facilities are made available to implement the provisions of this plan. The Parsons CM may delegate any or all the above responsibilities. The CM reports to the Parsons RD/RA manager.

2.1.5 Parsons Construction Engineer

The Parsons CE is the individual representing Parsons RD/RA management at the work site, with ultimate responsibility for the safe and successful completion of the project tasks assigned to Parsons. The CE manages field operations, executes the work plan, and/or enforces site control, and documents work site activities. The CE conducts and documents daily safety briefings at the start of the shift. All health and safety issues at the work site must be brought to the attention of the CE.

The CE must be present at the INEEL whenever activities are being performed at the work site. An alternate individual may be appointed to act as the CE as long as they meet all the training requirements outlined in Section 3. The identity of the acting CE shall be conveyed to work site personnel and recorded in the CE daily force report. The identity of the acting CE should also be communicated to the facility representative when appropriate.

2.1.6 Work Site Personnel

All work site personnel, including LMITCO and subcontractor personnel, are responsible for understanding and complying with requirements of this HASP. Work site personnel will be briefed by the CE or job site supervisor (JSS) at the start of each shift. Work site personnel should identify potentially unsafe situations or conditions to the CE or HSO for corrective action. *If unsafe conditions develop, work site personnel are authorized to stop work and notify the CE or HSO of the unsafe condition.*

2.1.7 Nonworkers

All persons who may be on the work site, but are not a part of the field team at the project site are considered nonworkers for the purposes of this project. A person shall be considered to be "on site" when they are present in or beyond the designated support zone. Nonworkers will be deemed occasional site workers per 29 CFR 1910.120, and must meet minimum training requirements for such workers as described in the OSHA standard, and any additional task-specific training that is identified in Section 3.

All nonworkers, including LMITCO employees from other departments and representatives of DOE or State or Federal regulatory agencies may not proceed beyond the support zone without receiving site-specific training, signing a site-specific training acknowledgment form, receiving a safety briefing, wearing the appropriate protective equipment, and providing proof of meeting the training requirements specified in Section 3 of this HASP. Nonworkers will be escorted by a fully trained work site representative (such as the CE or HSO, or a designated alternate) at all times while on the site.

A casual visitor to the site is a person who does not have a specific task to perform or other official business to conduct at the site. Casual visitors to the site are not permitted.

2.1.8 Health and Safety Officer

The HSO is the person located at the work site who serves as the primary contact for health and safety issues. The HSO advises the CE on all aspects of health and safety, and is authorized to stop work at the site if any operation threatens worker or public health or safety. The HSO has other specific responsibilities as stated in other sections of this HASP. The HSO is authorized to verify compliance to the HASP, conduct conformance inspections and require and monitor corrective actions, monitor decontamination procedures, and require corrections, as appropriate. The HSO is supported by other health and safety personnel at the work site (safety engineer, Industrial Hygienist (IH), Radiological Control technician (RCT), radiological engineer, and facility representative, as necessary).

If it is necessary for the HSO to leave the site, an alternate individual will be appointed by the HSO to fulfill this role, and the identity of the acting HSO will be recorded in the CE logbook.

2.1.9 Industrial Hygienist

The LMITCO IH is the primary source of information regarding nonradiological hazardous and toxic agents at the work site. The IH assesses the potential for worker exposures to hazardous agents in accordance with LMITCO company procedures and the LMITCO *Safety and Health Manual*. The IH assesses and recommends appropriate hazard controls for protection of work site personnel, reviews the effectiveness of monitoring and PPE required in this HASP and recommends changes as appropriate. Following an evacuation, the IH will assist in determining whether conditions at the task site are safe for reentry. Employees showing health effects resulting from possible exposure to hazardous agents will be referred to the Occupational Medical Program (OMP) by the IH, their supervisor, or the HSO. The IH may have other duties at the task site as specified in other sections of this HASP, or in company procedures and manuals. During emergencies involving hazardous materials, IH measurements will be performed by members of the Emergency Response Organization.

2.1.10 Safety Engineer

The LMITCO safety engineer reviews work packages, observes site activity, assesses compliance with the LMITCO *Safety and Health Manual*, issues Welding and Cutting Permits, advises the CE on required safety equipment, and recommends solutions to industrial safety issues that arise at the task site. The safety engineer may have other duties at the task site as specified in other sections of this HASP or in company procedures and manuals. The fire protection engineer function is under the safety engineer designation and is the person assigned to review work packages and performs field assessments for fire protection controls.

2.1.11 Radiological Control Technician

The LMITCO RCT is the primary source of information and guidance on radiological hazards. The RCT will be present at the task site during any work operations when a radiological hazard to operations personnel may exist or is anticipated. Responsibilities of the RCT include radiological surveying of the work site, equipment, and samples; providing guidance for radiological decontamination of equipment and personnel; and accompanying the affected personnel to the nearest INEEL medical

facility for evaluation if significant radiological contamination occurs. The RCT must notify the CE of any radiological occurrence that must be reported as directed by the *LMITCO Radiation Protection Manual*. The RCT may have other duties at the work site as specified in other sections of this HASP, or in company procedures and manuals.

2.1.12 Radiological Engineer

The radiological engineer is the primary source of information and guidance relative to the evaluation and control of radioactive hazards at the work site. The radiological engineer makes recommendations to minimize health and safety risks of work operations personnel if a radiological hazard exists or occurs at the work site. Responsibilities of the radiological engineer include performing radiation exposure estimates and as low as reasonably achievable (ALARA) evaluations; identifying the type(s) of radiological monitoring equipment necessary for the work; advising the CE and RCT of changes in monitoring or PPE, and advising on work site evacuation and reentry. The radiological engineer may also have other duties to perform as specified in other sections of this HASP, or in company procedures and manuals.

2.1.13 Occupational Medical Program

The INEEL OMP provides medical surveillance for LMITCO and Parsons personnel assigned as hazardous waste site workers per the 29 CFR 1910.120 Hazardous Waste Operations (HAZWOPER) OSHA standard. The OMP is also responsible for evaluation of all personnel (including subcontractor) injured or exposed to hazardous materials at the work site. Subcontractors are required to have a separate occupational medical surveillance program for HAZWOPER activities. See Section 4 for details of the medical surveillance program.

2.1.14 Facility Tenant Manager

The LMITCO facility tenant manager is responsible for maintaining their assigned facility, and must be cognizant of work being conducted in the facility. The facility tenant manager may be required to sign the safe work permits (SWPs) and radiological work permits (RWPs) governing work performed at the facility.

2.1.15 Facility Landlord or Representative

The LMITCO facility landlord is responsible for the safety of personnel and the safe completion of all project activities conducted within their area. Therefore, the facility landlord (or their representative) will be kept informed of all activities performed in the area. Where applicable, the facility landlord (or representative) and CE shall agree upon a schedule for reporting work progress and plans for work. The facility landlord (or representative) may serve as advisor to work operations personnel with regard to the area operations.

2.1.16 Environmental Compliance Engineer

The LMITCO environmental compliance engineer oversees monitors, and advises LMITCO organizations performing field activities at the INEEL. Responsibilities include ensuring compliance with DOE orders, EPA regulations, and other regulations concerning effects of activities on the

environment. The environmental compliance engineer provides support surveillance services for hazardous waste storage and transport and surface water storm water runoff control.

2.1.17 Quality Engineer

The LMITCO quality engineer provides guidance on work site quality issues when requested. The quality engineer observes work site activities and verifies that work operations comply with quality requirements pertaining to these activities. The quality engineer identifies activities that do not comply or have the potential for not complying with quality requirements and suggests corrective actions.

2.2 Recordkeeping Requirements

2.2.1 Industrial Hygiene and Radiological Monitoring Records

The IH will record air monitoring and personal sampling data on LMITCO IH forms. Industrial hygiene monitoring data are treated as limited access information and are maintained by the IH per *LMITCO Safety and Health Manual*. Any monitoring done by non IH safety personnel will be documented in a project controlled logbook, to be reviewed by the IH. The RCT keeps a logbook of all radiological monitoring, daily operational activities, and instrument calibrations. Radiological monitoring records are maintained according to the *LMITCO Radiation Protection Manual*.

2.2.2 CE Daily Force Report and Site Attendance Logbook

The CE will keep a record of daily work site events in the CE daily force report (logbook). The CE is also responsible for maintaining an accurate record of all personnel (workers *and* nonworkers) who are on site each day in a site attendance logbook. These logbooks must be submitted to Parsons Document Control along with other documents at the project's completion.

2.2.3 Administrative Record and Document Control Office

The administrative record and document control (ARDC) office is responsible for organizing and maintaining data and reports generated by ERP field activities. The ARDC maintains a supply of all controlled documents and provides a documented system for the control and release of controlled documents, reports, and records. Copies of the *Management Plans for the Environmental Restoration Program*, this HASP, the *Quality Program Plan for the Environmental Restoration Program* (QPP-149), the quality project plan, and other documents pertaining to this work are maintained in the project file by the ARDC. All project records and logbooks, except IH and RCT logbooks, must be forwarded to ARDC within 30 days after completion of field activities.

2.2.4 Document Control Office

The Parsons Document Control (DC) Office is responsible for organizing and maintaining data and reports generated by ERP field activities. The Parsons DC maintains a supply of all controlled documents and provides a documented system for the control and release of controlled documents, reports, and records. Copies of the *LMITCO Management Plans for the Environmental Restoration Program*, this HASP, the *Quality Program Plan for the Environmental Restoration Program* (QPP-149), the quality project plan, and other documents pertaining to this work are maintained in the project file by

the DC. All project records and logbooks, except IH and RCT logbooks, must be forwarded to ARDC within 30 days after completion of field activities.

3. PERSONNEL TRAINING

All work site personnel will receive training as specified by OSHA 29 CFR 1910.120 and the LMITCO Hazard Prevention and Control Manual. Radiation worker training shall be in accordance with LMITCO Radiological Control: Subject Area Manual MCP-126, "Training". Table 1 summarizes training requirements for work site personnel. Specific training requirements for each worker may vary depending on the hazards associated with the job assignment.

Proof of completion of all required training courses (including refresher training) must be maintained on the site at all times. Examples of acceptable written training documents include, LMITCO, "40 Hour OSHA HAZWOPER Card," LMITCO, "Respirator Authorization Card," DOE "Certificate of Core Radiological Training I or II Card," "Medic First Aid Training Card," and/or a copy of an individual's or units (LMITCO/Parsons only) Training Inquiry System (TIS) printout demonstrating completion of training. A copy of the certificate issued by the institution where the training was received is also acceptable proof of training.

Before beginning work at the work site, a project safety orientation will be conducted by the CE and HSO. The orientation will consist of a complete review of this HASP and attachments, with time for discussion and questions. At this time, personnel training will be checked and verified to be current and complete for all required training shown in Table 1. Upon completing the safety orientation, personnel will sign the training acknowledgment form (Section 12 of this HASP) to indicate that they have received the briefing and understand the HASP. For projects lasting longer than three days, personnel will be monitored by the CE or HSO for at least the initial three days of project activities, at which time, upon completion of satisfactory performance, the supervisor will complete the HAZWOPER 24 Hour Supervised Field Experience Acknowledgment Form (Section 13) and have the worker sign certifying that they have been trained. Copies of the documentation will be retained in the field training records for the project. LMITCO and Parsons training records shall be forwarded to the LMITCO Environmental Operations (EO) training coordinator (MS 3902) for retention in the employee training records.

A daily briefing of the task(s) to be performed that day will be provided by the CE, HSO, and/or RCT, (as applicable); during the briefing the tasks are to be outlined, hazards identified, hazard controls and work zones established, and PPE requirements discussed. After the completion of this briefing, worker's health and safety questions concerning tasks will be addressed and work control documents read and signed [e.g., SWP(s), RWP(s), Hot Work Permit(s)].

Some workers may not need or require all of the training listed in Table 1. Some work outside the exclusion zone may be performed by workers that do not meet all of the requirements; however, this must be approved by the CE and HSO.

Table 1. Required training for work site personnel.

Task/position	Supervisory personnel (i.e., CE, HSO, etc.)	Work site personnel	Nonworkers
Topic	Required	Required	Required
Work site orientation	X	X	X
Decontamination ^a	X	X	X ^b
Hazard communication	X	X	X
Site control and warning devices ^a	X	X	X
Emergency action plan for work site ^a	X	X	X
40 hour HAZWOPER ^c	X	X	—
24 hour HAZWOPER supervised field experience ⁱ	X	X	—
8 hour HAZWOPER site supervisor	X	—	—
Hearing conservation	X ^d	X ^d	X ^d
Radiological worker I/ radiological worker II	X ^d	X ^d	X ^d
Medic First ^e	X	—	—
Respirator qualification and fit test ^f	X ^f	X ^f	X ^f
24 hour HAZWOPER occasional worker ^g	—	—	X
8 hour HAZWOPER supervised field experience	—	—	X
Confined space entrant/attendant	X ^d	X ^d	—
Confined space job entry supervisor	X ^d	—	—
Hazardous Material (HAZMAT)	X ^h	X ^h	—
<u>Employee General Awareness Training</u>			

a. Will be included in work site orientation.

b. If entering contaminated areas (i.e., exclusion zone).

c. Includes 40 hours of classroom instruction and 24 hours of supervised field experience.

d. As appropriate.

e. Two Medic First qualified individuals must be present during site activities.

f. If entering areas requiring respirator use.

g. Includes 24 hours of classroom instruction and 8 hours of supervised field experience.

h. If identified as "HAZMAT" employee [i.e., anyone who directly affects hazardous material transportation safety by handling, packaging, labeling, loading, unloading, moving, driving, etc. (per 49 CFR 171.8)].

i. Training shall be documented by a checklist (Section 13 of this HASP) completed and signed by the project CE and HSO.

4. OCCUPATIONAL MEDICAL PROGRAM AND SURVEILLANCE

The LMITCO and Parsons work site personnel shall participate in the INEEL OMP per the requirements of OSHA 29 CFR 1910.120, which requires medical surveillance examinations before assignment, annually, and after termination of hazardous waste duties. This includes employees who are or who may be exposed to hazardous substances at or above published exposure limits, without regard to respirator use, for 30 or more days per year. Employees who must use a respirator in their job or who are required to take training to use a respirator to perform their duties under this plan must be medically evaluated for respirator use at least annually. Job-related information must be provided to the OMP for each hazardous material worker. This information must be submitted to the OMP before work begins. Information furnished to the OMP must be supplemented or updated annually as long as the employee is required to maintain hazardous waste/hazardous material worker medical clearance.

The OMP is responsible for evaluating the physical ability of a worker to perform the work assigned and providing medical clearance to the worker appropriate for the work to be performed. The OMP may impose restrictions on the employee by limiting the amount or type of work performed.

Areas addressed by the OMP for hazardous waste site workers include:

- Current comprehensive medical examinations in an INEEL medical facility for full-time employees
- Records and reports from employees' private physicians, as required by the site occupational medical director
- Medical evaluation by the OMP on return to work following an absence in excess of 1 work week (40 consecutive work hours) resulting from illness or injury
- Medical evaluation in the event that a supervisor questions the ability of an employee to work
- Medical evaluation in the event that an employee questions their own ability to work.

The information provided on the forms and by employee examination is used to determine the following for each employee:

- Ability to perform relevant occupational tasks
- Ability to work in protective equipment and heat stress environments
- Ability to use respiratory protection

NOTE: If the OMP does not have sufficient information at the time of request for clearance for respirator training, the employee's supervisor will be notified and clearance will be withheld until the needed information is provided and any additional examination or testing is completed.

- Entry into substance-specific medical surveillance programs
- Radiation Control (RADCON) personnel will refer to OMP to evaluate the need for medical intervention when an abnormal radiological exposure is suspected based on calculated committed effective dose equivalent values.

4.1 Subcontractor Workers

Subcontractor work site personnel shall participate in their own OMP per the requirements of OSHA 29 CFR 1910.120, which requires medical surveillance examinations before assignment, annually, and after termination of hazardous waste duties.

Medical data from the worker's private physician, collected pursuant to hazardous material worker qualification of a subcontractor worker, shall be made available to the OMP upon request. Also, subcontractor workers' past radiation exposure histories must be submitted to the LMITCO Radiation Dosimetry and Records Dosimetry Unit, per the LMITCO *Radiation Protection Manual*.

4.2 Injuries on the Work Site

It is the policy of the OMP to examine all workers, including subcontractors, if the workers are injured on the job, if they are experiencing symptoms consistent with exposure to a hazardous material, or if there is reason to believe that they have been exposed to toxic substances or physical agents in excess of allowable limits.

In the event of a known or suspected injury or illness due to exposure to a hazardous substance or physical agent, the worker(s) shall be transported to the nearest medical facility for evaluation. As much of the following information as is available will accompany the individual to the medical facility:

- Name, job title, work location, and supervisor's name and phone number
- Substances or physical agents (known or suspected); material safety data sheet (MSDS) if available
- Date of employee's first exposure to the substance or physical agent
- Locations, dates, and results of exposure monitoring
- PPE in use during this work (for example, respirator and cartridge)
- Number of days per month PPE has been in use
- Anticipated future exposure to the substance or agent.

Further medical evaluation will be in accordance with the symptoms, hazard involved, exposure level, and specific medical surveillance requirements.

As soon as possible after an injured person is taken care of, the CE or designate will perform the notifications as indicated in Section 10.2 of this HASP.

4.3 Substance-Specific Medical Surveillance

No substance-specific medical surveillance requirements apply to personnel working at the work site. The exposure hazards on this site are known, the site will be monitored for hazardous constituents, and the RCT and/or IH will specify PPE based on this monitoring.

5. SAFE WORK PRACTICES

5.1 General Safe Work Practices

The following are general safe work practices that will be followed at the work site:

1. Do not wear contact lenses in designated eye-hazard areas, unless they are essential to correct a vision defect not correctable by prescription safety glasses. Additional restrictions may apply per the LMITCO *Safety and Health Manual MCP-2716*, "Personal Protective Equipment."
2. ***Absolutely no*** eating, drinking, chewing gum or tobacco, smoking, applying cosmetics, or any other practice that increases the probability of hand-to-mouth transfer and ingestion of materials except in or outside the designated zone(s).
3. Report all broken skin or open wounds to the HSO or CE. The OMP will determine if the wound presents a significant risk of internal chemical or radiological exposure. The OMP evaluation will consider how the wound is bandaged and will recommend PPE to be worn by the injured employee. Personnel with unprotected wounds shall not be permitted to enter contamination areas, nor shall they handle contaminated or potentially contaminated materials at the site.
4. Avoid direct contact with potentially contaminated substances. Do not walk through spills or other areas of contamination. Avoid kneeling, leaning, or sitting on equipment or ground that may be contaminated.
5. Be alert for dangerous situations, strong or irritating odors, airborne dusts or vapors, and broken containers. Report all potentially dangerous situations to the CE or HSO.
6. Prevent releases of hazardous materials, including those used at the work site. If a spill occurs, contain it (if possible) and report it to the CE and/or HSO. Steps must then be taken to clean it up in accordance with the appropriate procedure, which may mean activating the emergency preparedness procedures for the area. Appropriate spill kits, or other containment and absorbent materials will be maintained at the work site. See Section 10 of this HASP for more details on the spill response plan for the work site.
7. Avoid splashing during decontamination.
8. Keep all ignition sources at least 50 ft from explosive or flammable environments and use nonsparking, explosion-proof equipment if advised to do so by a safety professional.
9. Be familiar with the physical characteristics of the work site, including, but not limited to:
 - Wind direction
 - Accessibility of fellow workers, equipment, and vehicles

- Communications at the work site and with other nearby facilities
 - Areas of known or suspected contamination
 - Major roads and means of access to and from the work site
 - Nearest water sources and fire fighting equipment
 - Warning devices and alarms
 - Capabilities and location of nearest emergency assistance.
10. If you are working in the exclusion zone, work in teams according to the "buddy system" (see Section 5.3 of this HASP).
 11. Proceed directly to a survey station upon leaving a radiological contamination zone. Care should be taken not to touch the face, mouth, and eyes before a survey has been performed.

5.2 ALARA Principles

Personnel working at the work site must strive to keep radiation and chemical exposure ALARA through the following practices:

- Radiological and Safe Work Permit compliance
- Radiation and chemical exposure limit awareness
- Adhere to all written radiological and chemical safety requirements and verbal guidance
- Be aware of personal radiation and chemical exposure history
- Work within ALARA guidelines and make suggestions as needed
- Minimize the production of all radioactive and chemical contaminated waste
- Minimize personal radiation and chemical exposure by adhering to these basic protection techniques:
 - **Time**—Exposure is minimized as time is minimized
 - **Distance**—Maintain a maximum distance from the radiation and/or chemical source
 - **Shielding**—Use any solid material (such as lead, steel, concrete, or PPE clothing) as a shield
 - **Ventilation**—Use appropriate systems to control airborne exposures.

5.3 The Buddy System

The buddy system will be used at the work site to ensure that each worker's mental and physical well-being is monitored during the course of the day. Work site personnel will be assigned a "buddy" by the CE to work with and regularly check on during the day. A record of the buddy assignments will be maintained by the CE, and updated as necessary. Workers need to be able to see or hear and effectively communicate with their buddy at all times when in the exclusion zone. Everyone should watch for signs and symptoms of illness or injury in their assigned "buddy."

6. SITE CONTROL AND SECURITY

Based on the expected work activity, worker and co-located worker exposure potential to chemical releases anticipated by each work and the levels of contamination work zones as shown in Figure 4 have been established for the work site. The rope barrier shown in Figure 4 will be the exclusion zone and the surrounding area will be the support zone. Entry into work site work zones is controlled through the use of barriers, signs, and other measures, which are described in detail in this section. Personnel not directly involved with the activity shall be excluded from entering work zones. Nonworkers, such as inspectors, may be admitted to the work site provided they are on official business, are escorted by the HSO or CE, and have demonstrated compliance with the training requirements in Section 3.

The work site does not require posting for any type of radiologically controlled areas. The LMITCO Radiation Protection Manual, MCP-187, "Posting Radiological Control Areas," shall be used for posting and controlling access to radiological controlled areas.

6.1 Exclusion Zone

The exclusion zone includes the immediate work area around the contamination area. This area is also a TAA. The minimum number of personnel required to safely perform the required operations will be allowed into the exclusion zone.

The exclusion zone is the area within the rope barrier as shown in Figure 4, the area is approximately 120 ft long and approximately 80 ft wide; but, the area does have an irregular shape (see Figure 4). The rope barrier has signs that designate the area as the exclusion zone/TAA and signs also tell visitors that no entry is allowed without the appropriate authorization. As work progresses the exclusion zone may either be enlarged or reduced as necessary. Appropriate requirements will be met to reduce the exclusion zone.

6.2 Contamination Reduction Zone

The contamination reduction zone is a transition area between the exclusion zone and the support zone. Because of the nature of the work and the fact that the contamination is contained in the frac tank, drums, and boxes a contamination reduction zone will not be used at the work site. If work activities require personnel to wear PPE, a contamination reduction zone will be designated by the HSO.

6.3 Support Zone

The support zone is the area outside the exclusion zone. It contains the work site office trailer, vehicle parking, additional equipment staging, and any work site support activities. The support zone that will be established outside and on the northwest end of the exclusion zone. The support zone will include the area outside the exclusion zone to Kearney Avenue and the office trailer will also be in this area (see Figure 4). Depending on the work activity, additional tanks, drums, and boxes may be stored in the support zone. Decontamination equipment may be staged in this area. After decontamination equipment and/or containers may be stored in the area pending final disposition or while waiting for transport. Demobilization activities may also use the area for equipment and/or waste containers awaiting final disposition.

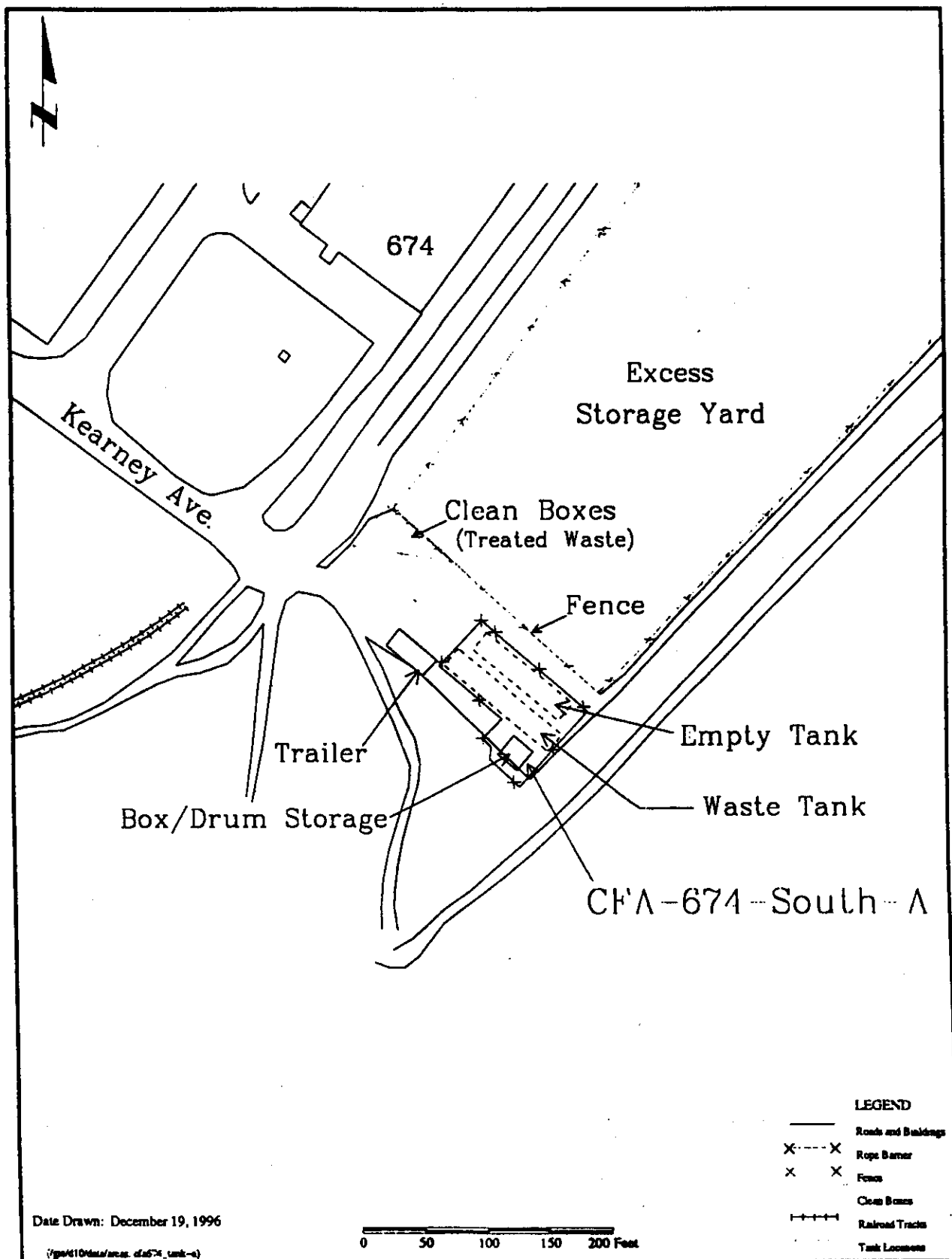


Figure 4. OU 4-05 TAA Layout Area.

6.4 Designated Eating Area

Ingestion of hazardous substances is likely when workers do not practice good personal hygiene habits. It is important to wash hands, face, and other exposed skin thoroughly after completion of work and before smoking, eating, drinking, and chewing gum or tobacco. ***No smoking, chewing, eating, or drinking is allowed at the work site***, except in an area that is designated as an eating area. The designated eating area at the work site will be the office trailer. This area is outside the exclusion zone and in a contamination-free area. Any area designated as an eating area must be regularly checked or surveyed to ensure that it remains contamination-free. The designated eating area will be verified "clean" on a daily basis by the HSO. If the area is found to be contaminated, immediate, appropriate steps will be taken by the CE or HSO to ensure that the area is returned to a clean condition. Once cleaned, the area will again be checked by the HSO.

7. HAZARD EVALUATION

7.1 Hazard Assessment

Personnel may be exposed to industrial safety hazards, or chemical, radiological and physical agents while working at the work site. The degree of hazard(s) posed to onsite personnel entering the work zones are dependent on both the chemical/radiological nature of the contaminant(s) and the task(s) being performed. Table 2 summarizes each task and the associated hazards. Table 3 contains information about the hazardous chemicals components present for this project.

The IH and radiological hazard monitoring plans are outlined in Sections 7.2.1 and 7.2.2, respectively.

The radiological hazards associated with this project are considered very small. Work site activities involving known or potential radiological hazards have been evaluated according to the *LMITCO Radiation Protection Manual*. As a result of this evaluation, it has been determined that a RWP, in accordance with *LMITCO Radiation Protection Manual*, MCP-7, "Radiological Work Permits" is not required for this activity. However, the following sections do address radiological monitoring in case it does become a concern. Past activities have included radiological surveys of equipment so the equipment may be taken off the INEEL.

The MSDSs for the hazardous materials which will be used during this project must be maintained at the job site. All hazardous materials must be approved by LMITCO IH/Safety prior to bringing the material onto the INEEL.

7.2 Environmental and Personnel Monitoring

Personnel working at the work site may be exposed to hazardous materials or hazardous physical agents, as already described. Industrial safety hazards and other physical hazards will be monitored and controlled as outlined in Section 7.3. Specific hazardous agent exposures that will be monitored are indicated in Table 4.

7.2.1 Industrial Hygiene Monitoring

The equipment listed in Table 5 may be used by the IH on the work site to monitor chemical and (nonradiological) physical agents.

All industrial hygiene equipment will be maintained by the IH per the manufacturer's recommendations. Instruments will be calibrated per manufacturer's recommendations, or according to the schedule outlined in the *LMITCO Safety and Health Manual*.

Air sampling will be conducted using NIOSH methods and according to the *LMITCO Safety and Health Manual*. Screening instruments, such as a photoionization detector (PID) and/or a flame ionization detector (FID), may be used. Sampling frequency and type of sampling will be determined by the IH. The number, frequency, and sampling techniques will depend on the IH's assessment of potential exposures and risk assessment for work site personnel in accordance with *LMITCO Safety and Health*

Table 2. Work site activities and associated hazards.

Activity or task	Associated hazards or hazardous agents
Treatability Study	Collecting samples may involve slip, trips, and falls; pushing, pulling, lifting, bending, or twisting; mercury vapor exposure; heat; cold; and noise. The primary hazard associated with the actual treatability study is mercury.
Freeze Protection	Slips, trips and falls; pushing, pulling, lifting, bending, or twisting; heat; cold; and noise. Work may also include working off of elevated work platforms and working off ladders. Work with unit heaters, electric blankets, and heat taping will involve electrical hazards and potential fire.
TAA Operations	Slips, trips and falls; pushing, pulling, lifting, bending, or twisting; heat; cold; noise; mercury; electrical; and elevated work. Possible spills during sampling or transporting waste.
Treated Material	Slips, trips and falls; pushing, pulling, lifting, bending, or twisting; heat and cold stress; and noise.
Diesel Contaminated Debris	Diesel; pushing, pulling, lifting, bending, or twisting.
Mercury Contaminated Water in Frac Tank	Slips, trips and falls; pushing, pulling, lifting, bending, or twisting; heat and cold stress; and noise. Work may also include working off of elevated work platforms and working off ladders. Electrical hazards, flammable, and combustible material.
Decontamination	Slips, trips and falls; pushing, pulling, lifting, bending, or twisting; heat and cold stress; and noise. Mercury exposure. Pressurized systems. Confined Spaces, and work in respirators.
Demobilization	Slips, trips, and falls; pushing, pulling, lifting, bending, or twisting; heat and cold stress; and noise. Elevated work, work off ladders, electrical, heavy equipment, and overhead hazards.

Table 3. Hazardous materials present at the Mercury Retort site.

Hazardous material	Exposure limit	Routes of exposure ^b	Symptoms of overexposure	Target organs/systems	Carcinogen	Expected levels
Mercury Cas # 7439-97-6	OSHA Ceiling— 0.1 mg/m ³ ACGIH TLV— 0.025 mg/m ³	Inhalation Ingestion Skin Absorption	Irritation of eyes, skin; cough, chest pain, dyspnea, bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, head ache, fatigue, weakness; stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria.	Eyes, skin, respiratory system, central nervous system, kidneys.	No	>0.025 for decontamination activities.

ACGIH—American Conference of Government Industrial Hygienists.
TLV—threshold limit value.

Manual. Air monitoring at the Mercury Retort site will be for mercury. Activities that will be monitored include, but not limited to, sampling, water treatment, waste packaging, and decontamination of frac tanks, drum, and equipment. Some activities (e.g., water treatment, sampling, moving boxes, etc.) will involve elevated noise levels. These will be monitored on a case by case basis at the IH's discretion. Dumping of treated material may generate elevated concentrations of airborne dust. Dust monitoring may be conducted to validate administrative controls for dust.

Sampling data, results from direct-reading instruments, and field observations will be recorded as per Section 2.2.1 of this HASP. The CE shall record the four-digit number printed at the upper right-hand corner of the IH monitoring data form which corresponds to the day's IH monitoring.

7.2.2 Radiological Monitoring

Surveys, smears, and other sampling will be performed if necessary by the RCT at the work site. Appropriate survey equipment will be used by the RCT to verify boundaries and work zones, survey personnel and equipment before leaving the work site, and verify that waste items are sent to the appropriate disposal facility. Monitoring will be performed in accordance with the LMITCO *Radiation Protection Manual*.

The RCT will be responsible for radiological monitoring in accordance with the LMITCO *Radiation Protection Manual*, MCP-139, "Radiological Surveys." All health physics equipment will be maintained and calibrated in accordance with MCP-93, "Instrumentation." Dosimetry monitoring shall be as determined by the RWP and performed in accordance with MCP-3, "Tracking Radiation Dosimetry with Dose Cards." Where required, as determined by RADCON analysis per MCP-352, "Conducting Airborne Hazard Analysis," airborne radioactivity sampling will be performed in accordance with MCP-357, "Job-Specific Air Sampling/Monitoring".

The equipment (or equivalent) listed in Table 6 may be used to monitor radiological contamination on site.

7.2.3 Action Levels

To ensure worker safety at the work site, action levels have been set for noise, mercury, and heat stress. These levels are indicated in Table 7. If levels of these contaminants reach the action level(s) noted, the corresponding action will be taken at the work site.

7.3 Physical Hazards Evaluation, Control, and Monitoring

The physical hazards present at the work site, and the methods that will be used to monitor and control them, are described in the following paragraphs.

7.3.1 Temperature Extremes

Heat Stress. Workers may be required to work outdoors during summer months and/or wear protective clothing that prevents the body from cooling. High body temperatures can result in heat fatigue, physical discomfort, and death. Personnel must inform the CE or HSO if they experience any of the signs and symptoms of heat stress or observe that their work buddy is experiencing these symptoms.

Table 4. Contaminants to be monitored.

Task or assignment	Contaminant or agent to be monitored
Treatability Study	Mercury
Freeze Protection	None
TAA Operations	Mercury, Noise
Treated Material	Dust
Diesel Contaminated Material	VOCs (diesel)
Mercury Contaminated Water in Frac Tank	Mercury, Noise
Decontamination	Mercury, Noise
Demobilization	Noise

Table 5. Equipment to be used for monitoring.

Equipment	Agent to be monitored
Personal sampling pumps and appropriate media	Dust
Sound level meter and/or noise dosimeter	Noise
Heat stress monitor (wet bulb globe temperature)	Heat stress conditions
Jerome, Passive Badges	Mercury

Table 6. Radiological monitoring equipment.

Equipment	Monitoring use ^a
Ludlum 61 or equivalent	Alpha emissions
Ludlum 62 or equivalent	Beta-gamma emissions
Ion chamber instrument, RO 13A or equivalent	Radiation dose rate

a. Work-specific radiological monitoring will be conducted as prescribed by the applicable task RWP.

LMITCO *Safety and Health Manual*, MCP-2704, "Heat and Cold Stress," discusses the hazards of heat stress.

Monitoring for heat stress conditions shall be performed according to the LMITCO *Safety and Health Manual* MCP-2704, "Heat and Cold Stress." Depending on the ambient weather conditions, work conditions, and physical response of work operations personnel, the IH will inform the CE of necessary adjustments to the work/rest cycle. A supply of cool drinking water will be provided at the work site and consumed only in the designated eating area.

Workers may be periodically interviewed by the IH or HSO to ensure that the controls are effective and that excessive heat exposure is not occurring. Workers will be encouraged to monitor their body signs and to take a break if symptoms of heat stress occur. The signs of heat stress are:

- Clammy skin
- Dizziness or nausea
- Fatigue
- Profuse sweating
- Skin color change
- Vision problems.

Individuals showing any of the symptoms listed above will stop work, move to a shaded area to rest, be provided cool drinking water, and be monitored by a Medic First qualified person. If personnel exhibiting symptoms of heat stress do not show signs of immediate recovery when removed to the rest area, they will be transported to the dispensary for medical attention.

Heat stroke is an extremely serious condition that can result in death and should be treated as such. An individual who stops sweating, or who shows symptoms of confusion, slurred speech, or any other evidence of change in level of consciousness, will be transported IMMEDIATELY to the nearest medical facility for evaluation.

Cold Stress. Exposure to low temperatures may be a factor if work is done in the winter months, or at any time of year if the conditions are right. Relatively cool ambient temperatures, and wet or windy conditions increase the potential for cold injury to personnel. The LMITCO *Safety and Health Manual* MCP-2704 discusses the hazards of cold stress. Cold stress conditions will be monitored in accordance with LMITCO *Safety and Health Manual* MCP-2704.

7.3.2 Noise

Personnel working at the work site may be exposed to noise levels in excess of 85 dBA during work site activities. Examples of noise sources that may be present at the work site are heavy equipment, portable generators, and pumps. Noise monitoring will be performed by the IH per the LMITCO *Safety and Health Manual* MCP-2719, "Hearing Conservation Program" to determine if persons assigned to the jobs identified above are exposed to noise above the allowable 8-hour time-weighted average of 85 dBA. Persons whose exposure meets or exceeds the allowable level will be enrolled in the INEEL or subcontractor OMP Hearing Conservation Program. Personnel working on jobs that are noisy will be

Table 7. Action levels for the work site.

Agent name	Action level	Action taken
Noise	8-hr Time Weighted Average > 85 dBA	Wear hearing protection as directed by the IH.
Mercury	> 0.025 mg/m ³ sustained in the workers breathing zone for 2 minutes	Stop work and evacuate the area. Additional monitoring by the IH. Upgrade to Level C as directed by the IH.
Heat Stress	90 degrees F for Level D 70 degrees F for tyvek suits	Monitor for heat stress conditions using the WBGT. Implement work/rest regimen in accordance with MCP-2704.

WBGT—Wet bulb globe test.

required to wear hearing protection until the noise levels have been evaluated, and will continue to wear the hearing protection specified by the IH until directed otherwise.

7.3.3 Fire and Explosion Hazards

Flammable and combustible liquids will be handled per LMITCO *Safety and Health Manual* MCP-584, "Flammable/Combustible Liquid Storage and Handling."

7.3.4 Confined Spaces

Work in confined spaces may subject workers to risks involving engulfment, entrapment, oxygen deficiency, and toxic or explosive atmospheres. There are confined spaces present at the work site. Entrances will be posted with the required danger or caution sign per the LMITCO *Safety and Health Manual* MCP-2749, "Confined Spaces." If a suspected confined space is not posted, treat it as a permit required confined space until a determination is made by the assigned safety/IH personnel. Confined spaces that personnel will enter at the work site include the water storage frac tanks. In accordance with the LMITCO *Safety and Health* MCP-2749, a confined space entry permit is required before anyone enters the space. A copy of the "Confined Space Identification and Evaluation Form" for each confined space to be entered will be provided by the HSO and project IH. The evaluation will include completion of a "Confined Space Entry Permit." Fire department notification is required prior to authorizing entry. A trained attendant will be outside the confined space to assist entrants, monitor the well-being of entrants, and notify the rescue team, if necessary. Personnel required to enter the space will be briefed on the hazards involved, the meaning of warning signals of any monitoring equipment that is worn or taken into the space, any special tools or equipment to be used, and actions to take in case of an emergency. The emergency rescue plan is outlined below.

Confined Space Emergency Rescue Plan. All confined space training will be verified by the Job Entry Supervisor (JES) and the CE. The entrant(s)/attendant(s) and JES must have course codes that meet the requirements listed in Section 3, "Personnel Training," Table 1. An emergency rescue plan

must be specified; the rescue plan must be specific to the space(s) entered and the hazards involved. It must include the number and type of rescue equipment (for example, harnesses, lanyards, tripod/winch) that will be used by entrants and/or maintained at the site, where the equipment will be staged or set up to facilitate a rescue, and specific assignments for work site personnel who will participate in a rescue. Personnel using rescue equipment must be trained to a "competent" level as defined in LMITCO MCP-2749, "Confined Spaces."

7.3.5 Industrial Safety Hazards

Handling Heavy Objects. Manual material handling will be minimized through task design and use of mechanical and hydraulic lifts whenever possible.

Sampling personnel may be exposed to injury by lifting heavy objects such as shipping coolers and water carboys. Personal injury can also occur during manual soil sampling. Proper insertion and removal of sampling tubes will be discussed with the team during the prejob briefing and as necessary during the job task.

All operations personnel are therefore cautioned against lifting objects that are too heavy. Mechanical and hydraulic assists will be used whenever possible to minimize lifting dangers. Field team members will be trained in the proper methods of lifting heavy objects and cautioned against lifting objects that are too heavy for the individual to handle safely. In addition, the CE or HSO will periodically review the basics of safe lifting in the daily safety briefings.

People involved in manual material handling will wear hand protection (i.e., leather gloves) as directed by the CE.

Sampling Equipment. All power tools will be properly maintained and used by qualified individuals in a safe manner and in accordance with the manufacturer's recommendations. The LMITCO *Safety and Health Manual* will be followed for all work performed with power tools including powered hand augers. No gas or diesel powered tool will be refueled while running.

Moving Machinery and Falling Objects. Work site personnel may be subject to cuts and bruises, or get caught in moving machinery during certain work site activities (see Table 2). Injuries will be avoided or minimized by following safe practices for operation of machinery; ensuring that guards are maintained in place; wearing gloves, eye protection, hard hats, and steel-toed boots; and using mechanical assists whenever possible. Loose clothing or neck chains for security badges will not be worn; long hair must be pulled back and secured when working around equipment with moving parts.

Electrical Hazards, Energized Systems. Electrical equipment and tools as well as overhead and underground lines may pose shock or electrocution hazards to employees. Safety-related work practices shall be employed to prevent electric shock or other injuries resulting from direct or indirect electrical contact. These practices will conform with the requirements in 29 CFR 1910, Subpart S; 29 CFR 1926, Subpart K; and the LMITCO *Safety and Health Manual* MCP-2731, "Electrical Safety" and LMITCO *Conduct of Operations Manual*, MCP-1059, "Lockouts and Tagouts" and facility supplemental MCPs. In addition all electrical work will be reviewed and completed under the appropriate work controls [i.e., HASPs, SWPs, Work Orders]. When working on deenergized systems, the requirements in LMITCO *Safety and Health Manual* MCP-2731 will be followed.

Work on energized systems will be minimized. If work on energized systems is necessary, the requirements in the *LMITCO Safety and Health Manual MCP-2731* will be strictly enforced. There shall be a qualified electrical backup present whenever work on energized systems is done.

Portable electrical tools and equipment also have the potential to cause shock or electrocution. Portable electrical tools will be ground fault circuit interruption (GFCI) protected and approved for use if operated in hazardous areas. All equipment and cords will be visually inspected before use. In addition, all portable electrical tools shall be included in the semiannual inspection and testing program. The requirements in the *LMITCO Safety and Health Manual MCP-2735, "Hand and Portable Power Tools,"* will be followed for all work using portable electrical tools or equipment.

Overhead power lines, downed electrical wires, and buried cables pose shock or electrocution hazards. Overhead electrical hazards will be identified by operating personnel before raising masts on drill rigs or using cranes. Minimum distances for working near overhead power lines, found in *LMITCO Safety and Health Manual MCP-3000, "Hoisting/Rigging,"* and Table 4-1 of the *DOE Hoisting and Rigging Manual*, will be followed. The requirements in the *LMITCO Safety and Health Manual MCP-2731* will be followed for all work performed near overhead lines. In addition, durable signs will be placed at the operator's station and on the outside of the drill rigs and cranes warning that electrocution or serious bodily injury may occur unless a minimum clearance of 10 ft is maintained between the drill rig and/or crane and energized power lines. If local jurisdiction has more restrictive requirements, then that clearance distance shall be marked on the signs.

Before beginning drilling or excavating operations, underground utility clearances will be obtained by contacting Telecommunications (526-1688 or 526-2512). The requirements for advanced notice of 48 hours will be met.

Energized systems, regardless of energy source, involve hazards associated with transfer of energy. Work on energized systems shall be performed under energy controlled conditions utilizing the *LMITCO Conduct of Operations Manual, MCP-1059, "Lockouts and Tagouts"* in conjunction with the facility-specific MCP.

Heavy Equipment. The hazards associated with the operation of heavy equipment include injury to personnel, equipment damage, and/or property damage. All heavy equipment will be used in the manner in which it was intended. Drivers will operate all equipment in accordance with manufacturer's instructions and within the safe operating parameters as defined by the manufacturer. Only required personnel will be allowed in the vicinity of operating heavy equipment and should maintain visual communication with the operator.

Personal Protective Equipment. Wearing PPE will reduce a worker's ability to move freely, see clearly, and hear directions and noise that might indicate a hazard. Also, PPE can increase the risk of heat stress. Work activities at the work site will be modified as necessary to ensure that personnel are able to work safely in the required PPE.

Elevated Work Areas. When performing certain work site activities (see Table 2), personnel will be required to work on elevated equipment or at heights. When such work is performed, personnel will use a safety harness and lanyard (for work heights exceeding 6 ft) or a safety net (for work at heights exceeding 25 ft) per the *LMITCO Safety and Health Manual*. Personnel required to use fall-protection PPE shall be trained in its proper use, limitations, and how to maintain and inspect the equipment.

Excavation, Trenching, and Shoring. Excavation work can pose a number of hazards. Specific hazards include: cave-ins, engulfment, sudden subsidence of soil, breach of underground containers, and water accumulation. Work in or near any excavation presents serious potential hazards; personnel protective systems, barricades, signs, and daily inspections are some of the safeguards required for excavation work. All excavations at the work site will be in accordance with the requirements outlined in OSHA 29 CFR 1926, Subpart P, "Excavations," and the LMITCO *Safety and Health Manual MCP-2733*, "Excavations."

Decontamination. The chemical and radiological decontamination processes used to remove contaminants from tools, equipment, and work site personnel can spread contamination and increase the risk of exposure if decontamination activities are not performed according to procedures. High pressure, hot water and steam, if used in the process, can present a hazard if it rebounds into the face or onto the body of personnel, and contaminants may become airborne from this process. Decontamination procedures must be followed and appropriate PPE must be used during decontamination activities.

Inclement Weather. In the event that adverse weather conditions develop that pose a threat to persons or property on the work site, such as sustained strong winds (25 mph or greater), electrical storms, heavy precipitation, or extreme heat or cold. The situation will be evaluated by the CE with input from the HSO, IH, safety engineer, RCT, and other personnel, as appropriate. A decision to stop all work at the work site will be made by the CE with input from the HSO, IH, and/or RCT based on the hazards involved and the situation. In some cases, work at the site may proceed provided that workers are afforded adequate, appropriate protection. At no time will individual health and safety be jeopardized in order to continue work.

7.4 Other Work Site Hazards

Work site personnel should look for potential hazards and immediately inform the CE or HSO of the hazards so that action can be taken to correct the condition.

The CE will conduct inspections prior to work at the work site to ensure that barriers and signs are being maintained, unsafe conditions are corrected, and debris is not accumulating on the site. These inspections will be noted in the CE logbook. Health and safety professionals present at the work site may, at any time, recommend changes in work habits to the CE.

Individuals working at the work site are responsible to use safe work techniques, report unsafe working conditions, and exercise good personal hygiene and housekeeping habits throughout the course of their job.

8. PERSONAL PROTECTIVE EQUIPMENT

The PPE that will be used at the work site is selected based on the toxicity, route of entry, physical form of contaminant, and anticipated levels of known hazardous materials and agents at the work site, recommendations contained in NIOSH (1985), and on the hazard analysis in Section 7 of this HASP. Based on the hazard analysis and the recommendations cited above, Level D will be used during normal work activities. Some activities (such as decontamination of drums or tanks) may require a modified Level D or Level C PPE. A list of the PPE that is required follows:

8.1 Level D Personal Protective Equipment

Level D PPE affords little protection against chemical hazards and is appropriate for use at the work site when personnel are not expected to be exposed to hazardous chemicals above an allowable limit and no danger exists due to absorption of chemicals through the skin. Level D is basically a standard work uniform. This level of PPE at the work site consists of:

- Street clothes
- Hard hat (as required by the safety engineer)
- Eye Protection (safety glasses with side shields)
- Safety footwear (Steel or protective toe and shank leather boot).

Other items may be specified depending on the task and hazards involved. The project IH or HSO will determine the required PPE for all work activities.

8.2 Level C Personal Protective Equipment

Level C PPE is appropriate for use at the work site when the contaminants are well-characterized and personnel can be protected using air purifying respirators, there is minimal hazard exposure to personnel via skin absorption, and there is very little danger that an immediately dangerous to life or health (IDLH) condition will develop. Personnel working at the work site and wearing Level C PPE shall wear:

- Full-face air-purifying respirator with Mersorb and/or HEPA cartridge
- Water resistant Tyvek
- Steel or protective toe and shank boots
- Chemical-resistant rubber boot covers
- Nitrile gloves (leather gloves may be used for manual material handling)
- Hard hat (as required by the safety engineer).

8.3 Modified Level D Personal Protective Equipment

Modified Level D PPE will be used to keep contamination off personal clothing and prevent the spread of contamination outside the exclusion zone. Personnel working at the work site and wearing Modified Level D PPE shall wear:

- Water resistant Tyvek
- Steel or protective toe and shank boots
- Chemical-resistant rubber boot covers
- Nitrile gloves (leather gloves may be used for manual material handling)
- Hard hat (as required by the safety engineer).

The PPE must be inspected by the user before donning it and before entry into the zone. Items found to be defective will not be used. In addition to the task-specific SWP a task-specific job safety analysis will be required. The JSA will describe the work activities in detail, the associated hazards, and the mitigative measures that will be used.

All personnel required to wear respirators must have been trained and acceptably fit-tested for the assigned respirator, per the training and documentation requirements in Section 3 of this HASP. Requirements for respirator use, emergency use, storage, cleaning, and maintenance, as stated in the *LMITCO Safety and Health Manual*, MCP-2726, "Respiratory Protection," will be followed.

Table 8 lists each task or assignment and the corresponding level of PPE, as well as any additional or special items necessary for personal protection at the work site.

Table 8. Level of PPE and modifications for specific tasks.

Task or Assignment	Level of PPE	Modifications
Treatability Study	D	Modified D (for sampling)
Freeze Protection	D	None
TAA Operations	D	Modified D (for sampling)
Treated Material	D	None
Diesel Contaminated Material	D	None
Mercury Contaminated Water in Frac Tank	D	Modified D (for sampling)
Decontamination	Modified D	Upgrade to Level C
Demobilization	D	None

9. DECONTAMINATION PROCEDURES

9.1 Level D PPE Decontamination

For Level D PPE, decontamination of personnel at the work site will require that employees soap and water wash hands and face immediately after exiting the exclusion zone and before eating, drinking, smoking, chewing, and/or applying cosmetics/sunscreen. Additional decontamination will be conducted at the direction of the HSO/IH, if deemed necessary.

A wash station consisting of a soap and tap water wash basin and tap water rinse basin will be installed at the work site. A separate set of wash basins will be set up for sampling equipment as appropriate. Shower facilities will not be available at the project work site.

9.2 Level C PPE and Modified Level D Decontamination

When Level C PPE is required, the decontamination station should be located at the junction between the exclusion zone and the contamination reduction zone.

AT POINT OF ENTRY/EXIT FROM EXCLUSION TO CONTAMINATION REDUCTION ZONE

1. Place tools and equipment into appropriate container(s).
2. Remove boot covers or rubber boots; place boots into box for reuse at the site.
3. Remove nitrile gloves and place in plastic garbage bag. If leather or reusable nitriles are used, remove and place in box for reuse at the site.
4. Remove respirator, if Level C PPE is used. Respirators will be issued to workers for the duration of the job, if required. They will be wiped out and filters changed daily or as needed.
5. Remove Tyvek coveralls and place in plastic bag.
6. Field wash.

Additional decontamination will be conducted at the direction of the HSO/IH, if deemed necessary.

9.3 Decontamination of Personnel and Equipment

Chemical decontamination of personnel shall be done under the direct supervision of LMITCO IH personnel. Personnel and personal property decontamination procedures that may be used include: tape, vacuuming (vacuum must be equipped with a high-efficiency particulate air filter), washing with soap and water, or other approved techniques.

9.3.1 Decontamination in Medical Emergencies

If a person is injured or becomes ill, the situation will be evaluated by first aid personnel on the work site. Emergency care will be initiated and emergency preparedness procedures for CFA will be activated. *Medical care for serious injury or illness will not be delayed for decontamination.* In such cases, gross contamination may be removed by removing the injured person's outer protective gear (if possible). Additional decontamination may be performed at the medical facility. The IH should accompany the employee to the medical facility to provide information and decontamination assistance to medical personnel.

9.3.2 Equipment Decontamination and Disposal of Contaminated Materials

Decontamination may include, but is not limited to rinsing, washing, and/or wiping of tanks or drums. Equipment (such as heaters, pumps, or piping) may be rinsed. Process equipment may also be rinsed. A task specific procedure will be written and have the appropriate approvals prior to decontamination activities start. Any equipment or containers that cannot be decontaminated will be stored in the TAA/exclusion zone pending final disposition.

All hazardous waste generated in the decontamination process must be handled and disposed of in accordance with the LMITCO Environmental MCPs, and Waste Certification Plans. Contaminated equipment that can be reused may be placed in appropriate, labeled containers that can be decontaminated before being removed from the work site. Additional decontamination procedures that may be used are: LMITCO ER Program Directives (PD) 11.4, "Field Decontamination of Heavy Equipment, Drill Rigs, and Drilling Equipment" and PD 11.5, Decontamination of Sampling Equipment."

9.3.3 Site Sanitation and Waste Minimization

Work site personnel will use toilet facilities located at CFA-674 or a portable toilet that will be placed near the work site. Potable water and soap will also be available at the site for personnel to wash their hands and face upon exiting the work area.

Waste materials will not be allowed to accumulate at the work site. Appropriate containers for contaminated and noncontaminated waste will be maintained at the work site, in the support zone, and at other appropriate locations at the work site. Personnel should make every attempt to minimize waste through judicious use of consumable materials. All work site personnel are expected to make good housekeeping a priority at the job site.

10. EMERGENCY RESPONSE PLAN FOR WORK SITE

The methods and signals that will be used to alert work site personnel to stop work and evacuate the work site are verbal commands or by 10-net radio. Additional emergency response are:

- The location where work site personnel will assemble following an evacuation of the work site is the support zone. This location is upwind and upgrade from the work site.
- The take-cover location where personnel will assemble in the event of a Site-wide take-cover alarm is the CFA-674 building or nearest building. The location will be upwind and upgrade from the work site.
- In the event of an INEEL Site-wide evacuation siren, personnel at the work site will assemble at Assembly Area #7, located adjacent to CFA-623 and CF-622 on Nevada Street.
- The method work site personnel will use for summoning emergency assistance to the work site is 10-Net radio or cellular phone.

Responsibilities at the work site during an emergency event are as provided in Table 9.

Table 9. Responsibilities during an emergency.

Responsible person	Action assigned
CE	Signal evacuation
CE	Contact Safety/IH/RCT
CE	Call Warning Communication Center (WCC)
Medic First trained personnel	First aid to victims
CE	Contact area emergency action manager (EAM)
CE	Contact OMP
CE	Spill containment
CE	Spill reporting

At least two persons with current Medic First training will be present at the work site to render first aid assistance to victims in an emergency. Some activities will require only two or three people at the work site; under these conditions only one person with Medic First training is required to be at the work site.

Spill control at the work site will be handled by work site personnel if the spills are small enough to be safely contained at the site. If any uncontrolled release of hazardous material is noticed, work site personnel shall comply with the following:

Immediate Spill Response Actions

Initial Responder If you do not know the material's characteristics:

- **Evacuate and isolate** the immediate area
- Notify and then seek **help** from and **warn** others in the area
- **Notify** CE and HSO.

Trained Responder If you are trained to respond to the hazard:

- Seek **help** from and **warn** others in the area
- **Stop** the spill, if it can be done without risk (e.g., return the container to upright position, close valve, shut off power, etc.)
- **Provide** pertinent information to CE and HSO
- **Secure** any ventilation paths and ensure that an appropriate PPE level protected RCT, IH surveys the area to determine the extent of a radiological, chemical material spill.

The LMITCO "*Addendum 1- Central Facilities Area - INEL Emergency Plan RCRA Contingency Plan*" contains additional pertinent information. RCRA TAA information is found in Appendix L to Addendum 1. The Environmental Compliance spill response categorization/notification team must be contacted immediately via pager #6400.

10.1 Emergency Equipment on the Site

Emergency response equipment that will be maintained at the site includes the items described in Table 10.

Fire extinguishers and a first aid kit are minimum requirements for all work site activities. The fire extinguisher is located in the exclusion zone/TAA and the first aid kit is located in the office trailer. Other items must be considered and should be present at that work site or readily available if it is possible that they will be needed on the site. The INEEL Fire Department has a mutual aid agreement with the Idaho Falls, Blackfoot, and Arco Fire Departments.

The nearest emergency response team is the INEEL Fire Department, located at CFA. This team has response capability for medical emergencies, fires, or hazardous material spills. An emergency drill will be conducted by the CE at the beginning of the project.

Table 10. Emergency response equipment to be maintained at the work site.

Equipment name	Location at work site	Responsible person	Frequency of inspection ^a
Fire extinguishers	TAA/Exclusion Zone and Field Trailer	CE	Monthly
First aid kit	Field Trailer	CE	Weekly
Eyewash station	Field Trailer	CE	Weekly
Hazardous materials spill kit	Support Zone	CE	Weekly
Extra PPE	Field Trailer	CE	Weekly

a. The site may be inactive from time to time, therefore, inspection will also be performed prior to work.

Figure 5 shows the route to the nearest medical facility and locations of the nearby emergency response teams and the location of take cover stations and facility evacuation routes and pickup locations.

An emergency drill will be conducted at the beginning of the work. The objective of the drill is to allow work site personnel an opportunity to practice their respective emergency response actions. *Any radio or telephone communications that are included in this drill shall be immediately preceded and followed with a statement that clearly identifies the situation as a drill to prevent an actual emergency response from being initiated by WCC.* Additional drills will be conducted if activities at the work site continue for more than 12 months.

Each drill or actual emergency event at the work site will be followed by a critique and any deficiencies in the emergency plan that are identified will be corrected.

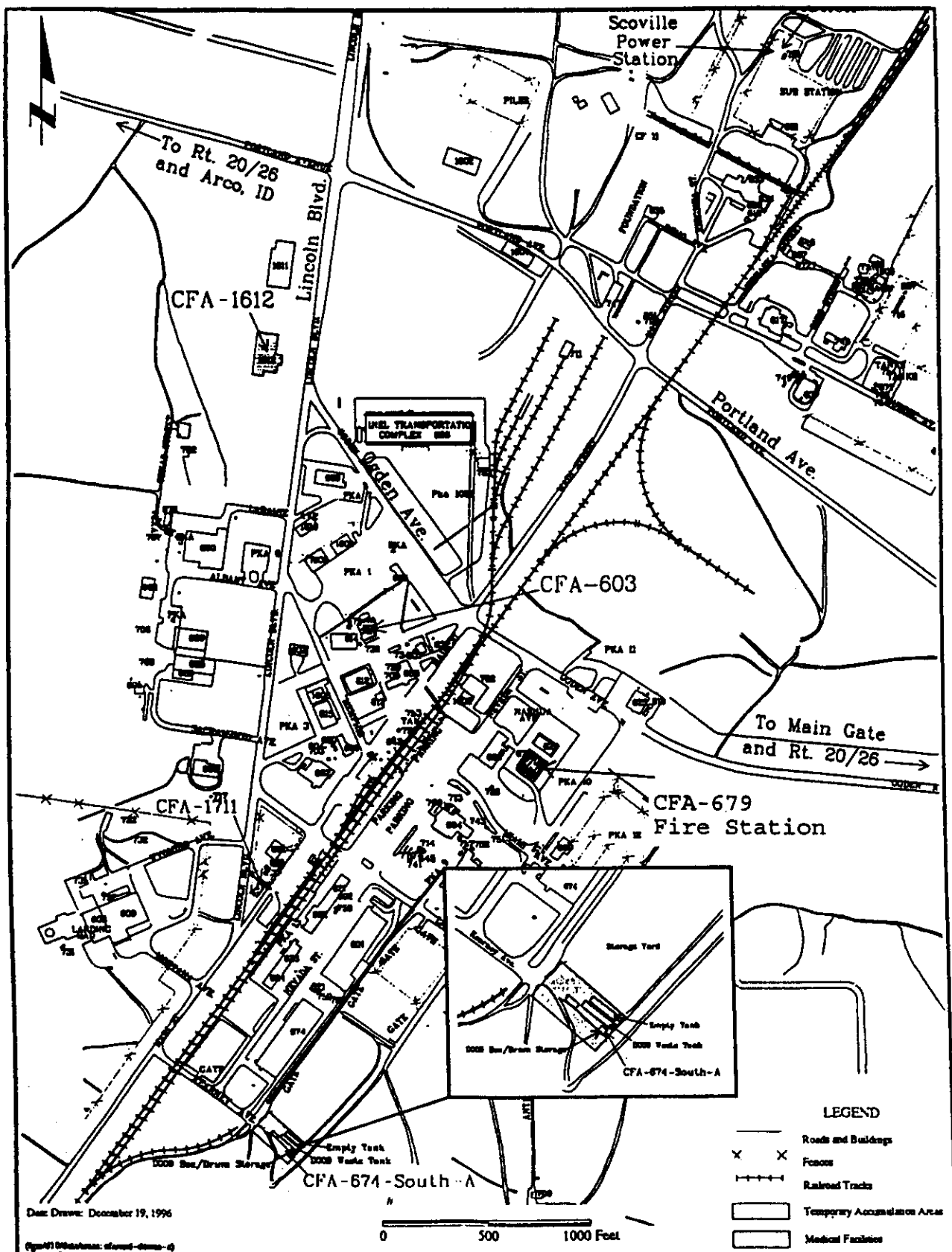


Figure 5. CFA Map with OU 4-05 TAA and Medical Facility Locations.

10.2 Telephone/Radio Contact Reference List for the Mercury Retort Site

This reference list will be posted in the office trailer.

- | | |
|--|--|
| • Warning Communications Center (WCC) | Site Phone: 777
Radio: KID-240
Mobile Phone: 526-1515
Contact through WCC |
| • Area emergency action manager or coordinator (CFA) | |
| • First Aid (CFA Dispensary, Bldg 1612) | Site Phone: 777
526-2356 |
| • Occupational Medical Program (CFA Dispensary) | 526-2356 |
| • Fire/Security | Site Phone: 777
Mobile Phone: 526-1515 |
| • CFA Facility Manager, LMITCO
Gary Braun | 526-2830 |
| • LMITCO Project Manager
Charlie Dietz | 526-9314 |
| • Parsons Project Manager
D.M. Nicklaus | 526-5683 |
| • Construction Engineer, Parsons
R. W. Jones | 526-4961
Pager: 7701 |
| • Construction Manager, Parsons
Max Lapioli | 526-6601
Pager: 5659 |
| • LMITCO ER ES&H Manager
Roger Jones | 526-8590
Pager: 6519 |
| • LMITCO EO S&H Supervisor
Jim Durrant | 526-6562
Pager: 5747 |
| • LMITCO Industrial Hygiene/Safety (HSO)
Lance Gurney | 526-8581
Pager: 6768 |
| • LMITCO Radiological Control Supervisor (CFA)
Bill Craft | 526-3565
Pager: 5295 |
| • LMITCO ER, Site Services, and AEDL Env. Support Supervisor
W.L. Moe | 526-6177
Pager: 7510 |

This reference list will be posted in the office trailer and at the offices of those assigned notification responsibilities. To use pagers dial 526-4444 and follow the instructions.

ACTIVITY	TITLE		PHONE	PAGER	RADIO
RESPONSIBLE PERSON	CONSTRUCTION ENGINEER				
Notifies	Fire Department	777	n/a	KID 240	
		Cellular: 526-1515			
Notifies	Warning Communication Center (WCC)	777	n/a	KID 240	
		Cellular: 526-1515			
Notifies	Emergency action coordinator	Contact through WCC	n/a	KID 240	
Notifies	In case of a spill: Env. Compliance Spill Team	----	6400	n/a	
Notifies	Site Area EO S&H Supervisor	526-6562	5747	n/a	
Notifies	LMITCO project manager	526-9314	n/a	n/a	
Notifies	Parsons construction manager	526-6601	5659	36 (10-nef)	
RESPONSIBLE PERSON	LMITCO PROJECT MANAGER/PARSONS CONSTRUCTION MANAGER			---	a
Notifies	CFA Facility Manager/Landlord	526-2380	5084	n/a	
		526-2150	5717		
Notifies	CFA DOE Facility Representative	526-7418	6902	n/a	
Notifies	LMITCO ER ES&H manager	6-8590	6519	n/a	
Notifies	Parsons RD/RA Director	6-4418	6522	n/a	
RESPONSIBLE PERSON	LMITCO DEPARTMENT MANAGER/PARSONS RD/RA DIRECTOR				
Notifies	LMITCO ER Director	6-1559	5013	n/a	

a. The radio system is presently being upgraded. New radio contacts will be posted in the project trailer.

11. REFERENCES

Auditable Safety Analysis for the treatment of Mercury-Contaminated Waste for Environmental Restoration Operations, INEL 95/0180, Rev. 0, September 1995.

Conduct of Operations Manual, LMITCO, Inc., current issue.

Environmental Management Control Procedures, LMITCO, Inc., current issue.

Safety and Health Manual, LMITCO, Inc., current issue.

INEL Emergency Plan/RCRA Contingency Plan, LMITCO, current issue.

Radiation Protection Manual, LMITCO, current issue.

Management Plans for the LMITCO Environmental Restoration Program, LMITCO, Inc., current issue.

NIOSH, 1985, *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, NIOSH/OSHA/USCG/EPA, DHHS (NIOSH) Publication No. 85-115, October.

Quality Program Plan for the Environmental Restoration Program, QPP-149, LMITCO, Inc., current issue.

Parsons RD/RA Project Procedures, current issue.

LMITCO hazard Prevention and Control manual, current issue.

29 CFR 1910.120 "Hazardous Waste Operations and Emergency Response."

40 CFR 268.42, Treatment Standards Expressed as Specified technologies.

40 CFR 261.4, Exclusions.

LMITCO Radiological Control: Subject Area Manual MCP-126, current issue.

49 CFR CFR 171.8, Definitions and Abbreviations.

LMITCO ER Program Directives, current issue.

LMITCO Emergency Preparedness Manual, current issue.

12. HEALTH AND SAFETY PLAN TRAINING ACKNOWLEDGMENT

The signatures below certify that:

- The employee has reviewed a copy of the HASP for Mercury Retort Site and questions and concerns regarding tasks and associated hazards have been answered to the employee's satisfaction
- The employee understands the hazards that are or may be involved in work at the Mercury Retort Site (Section 7, "Hazard Evaluation," Table 2 Work Activities and associated hazards
- The employee agrees to comply with all requirements as outlined in this HASP
- The employee's training records have been verified as complete and current for the employee's assignment at the work site.

Health and Safety Officer's name (printed) and signature:

Print	Signature	Org.	Date
-------	-----------	------	------

Construction Engineer's name (printed) and signature:

Print	Signature	Org.	Date
-------	-----------	------	------

Employee's name (printed) and signature:

Print	Signature	Org.	Date
-------	-----------	------	------

Print	Signature	Org.	Date
-------	-----------	------	------

Print	Signature	Org.	Date
-------	-----------	------	------

Print	Signature	Org.	Date
Print	Signature	Org.	Date
Print	Signature	Org.	Date
Print	Signature	Org.	Date
Print	Signature	Org.	Date
Print	Signature	Org.	Date
Print	Signature	Org.	Date
Print	Signature	Org.	Date
Print	Signature	Org.	Date
Print	Signature	Org.	Date

13. HAZWOPER 24 HOUR SUPERVISED FIELD EXPERIENCE ACKNOWLEDGMENT FORM

This checklist is to be completed for each HAZWOPER worker performing field tasks lasting longer than three working days. The checklist is to be completed by the immediate field supervisor based upon his observations and worker refresher training during daily Plan of the Days meetings. For LMITCO and Parsons employees, the signed form is to be submitted to the LMITCO EO Training Coordinator at MS 3902 and a copy retained in the field project files.

Project: Mercury Retort

- ☐ Knowledge of names of personnel and alternates responsible for project safety and health.
- ☐ Knowledge of safety, health hazards at the work site and co-located facilities.
- ☐ Knowledge of personal protective equipment requirements.
- ☐ Knowledge of operating/maintenance procedures and safe work practices.
- ☐ Knowledge of hazard control.
- ☐ Knowledge of medical surveillance requirements, including recognition of signs and symptoms which may indicate overexposure to hazards.
- ☐ Knowledge of decontamination procedures.
- ☐ Knowledge of work site and facility emergency response procedures.
- ☐ Knowledge of emergency signals, take cover areas and evacuation routes.
- ☐ Knowledge of spill containment and waste management/minimization procedures.
- ☐ Knowledge of work site access controls and posting.
- ☐ Knowledge of location of first aid kits, eye wash stations, fire extinguishers, and energized system controls.

Trainee Date

Supervisor Date